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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,569	06/19/2006	Takahiro Baba	M1071.1955	7871

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DICKSTEIN SHAPIRO LLP
1177 AVENUE OF THE AMERICAS (6TH AVENUE)
NEW YORK, NY 10036-2714

EXAMINER	
GANNON, LEVI	
ART UNIT	PAPER NUMBER
2817	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/562,569	BABA ET AL.	
	Examiner	Art Unit	
	LEVI GANNON	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments, see page 7, lines 7-13, filed 06/25/08, with respect to the rejection(s) of claim(s) 2 and 4 under 35 U.S.C. 103(a) as being unpatentable over Sakamoto and Clark have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Sakamoto, as noted below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2-5 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al. (hereinafter "Sakamoto") (US Patent 6,204,739; reference of record) in view of Clark (US Patent 4,553,097; reference of record).

Regarding claim 2, Sakamoto discloses an oscillator device (figure 1) comprising an oscillation circuit substrate (6); an oscillation circuit (11-25) disposed on the oscillation circuit substrate (6) to oscillate a signal (output at 24) having a predetermined oscillating frequency; and a dielectric resonator (in opening 4) for setting the oscillating frequency, the dielectric resonator including: a dielectric substrate (1) mounted on a

surface (bottom of oscillation circuit substrate 6) of the oscillation circuit substrate, a resonator (in opening 4) having a first electrode (2) disposed on a first surface (top of 1) of the dielectric substrate and a second electrode (3) disposed on a second surface (bottom of 1) of the dielectric substrate (1), and an excitation electrode (11) disposed on the dielectric substrate (1), the excitation electrode (11) being connected to the oscillation circuit (11-25) and being coupled with the resonator (in opening 4), wherein the oscillation circuit includes a transmission line (11') disposed on the surface of the oscillation circuit substrate (6) and a ground electrode (14, 17 and between 1 and 6; note col. 5, lines 43-45), and the first electrodes (2) of the resonator is connected to a land disposed on the surface (bottom) of the oscillation circuit substrate (6), and the land is connected to the ground electrode (The first electrode 2 is mounted on the bottom of the oscillation substrate 6, so there must be a land between the first electrode 2 and the bottom surface of the oscillation circuit substrate 6. Also, there is a ground electrode between the oscillation surface substrate 6 and the dielectric substrate 1. Note col. 5, lines 43-45).

Sakamoto does not teach the resonator being a Tm010 mode resonator or at least one of the electrodes (2, 3) being circular.

As would have been recognized by one of ordinary skill in the art, the shape of the electrodes (2, 3) of Sakamoto does not affect the function of the electrodes (2, 3). The oscillation device taught in figure 1 of Sakamoto would work equally well regardless of the shape of the electrodes (2, 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to replace the electrodes of Sakamoto with electrodes that are circular because such a modification would not have affected the function of the electrodes (2, 3) of Sakamoto and would have provided an oscillation device that functioned equally well as the oscillation device currently taught in figure 1 of Sakamoto.

Also, Clark teaches an advantage to using an oscillating device in the Tm010 mode being that the electromagnetic signal does not readily cut off or greatly attenuate over wide frequency ranges.

It would have been obvious to one of ordinary skill in the art at time of the invention to replace the resonator of Sakamoto with a resonator in the Tm010 mode because such a modification would provide the benefit of producing an electromagnetic signal that does not readily cut off or greatly attenuate over a wide frequency range.

As for claim 3, Sakamoto teaches the oscillator device according to claim 2, but fails to teach the first electrode (2) of the resonator being connected to the land with bumps.

However, it is well known to those of ordinary skill in the art to use bumps when connecting circuit elements to lands on a dielectric substrate.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to use bumps to connect the first electrode 2 of Sakamoto to the land of the circuit substrate 6.

Regarding claim 4, Sakamoto discloses an oscillator device (figure 1) comprising an oscillation circuit substrate (6); an oscillation circuit (11-25) disposed on the

oscillation circuit substrate (6) to oscillate a signal (output at 24) having a predetermined oscillating frequency; and a dielectric resonator (in opening 4) for setting the oscillating frequency, the dielectric resonator including: a dielectric substrate (1) mounted on a surface (bottom of oscillation circuit substrate 6) of the oscillation circuit substrate, a resonator (in opening 4) having a first electrode (2) disposed on a first surface (top of 1) of the dielectric substrate and a second electrode (3) disposed on a second surface (bottom of 1) of the dielectric substrate (1), and an excitation electrode (11) disposed on the dielectric substrate (1), the excitation electrode (11) being connected to the oscillation circuit (11-25) and being coupled with the resonator (in opening 4), wherein the oscillation circuit includes a transmission line (11') and a ground electrode (14, 17 and between 1 and 6; note col. 5, lines 43-45) on the surface of the oscillation circuit substrate, and the first electrode (2) of the resonator being connected to the ground electrode (There is a ground electrode between the oscillation surface substrate 6 and the dielectric substrate 1 where the first electrode 1 is located. Note col. 5, lines 43-45) disposed on the surface (bottom) of the oscillation circuit substrate (6).

Sakamoto does not teach the resonator being a Tm010 mode resonator or at least one of the electrodes (2, 3) being circular.

As would have been recognized by one of ordinary skill in the art, the shape of the electrodes (2, 3) of Sakamoto does not affect the function of the electrodes (2, 3). The oscillation device taught in figure 1 of Sakamoto would work equally well regardless of the shape of the electrodes (2, 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to replace the electrodes of Sakamoto with electrodes that are circular because such a modification would not have affected the function of the electrodes (2, 3) of Sakamoto and would have provided an oscillation device that functioned equally well as the oscillation device currently taught in figure 1 of Sakamoto.

Also, Clark teaches an advantage to using an oscillating device in the Tm010 mode being that the electromagnetic signal does not readily cut off or greatly attenuate over wide frequency ranges.

It would have been obvious to one of ordinary skill in the art at time of the invention to replace the resonator of Sakamoto with a resonator in the Tm010 mode because such a modification would provide the benefit of producing an electromagnetic signal that does not readily cut off or greatly attenuate over a wide frequency range.

As for claims 5 and 9, Sakamoto teaches a frequency control circuit (comprising at least varactor 16) for controlling the oscillating frequency, (function of varactor in oscillator circuits) the frequency control circuit being disposed on the oscillation circuit substrate (6), and a second excitation electrode (coupling line 12) disposed on the dielectric substrate (1), the second excitation electrode coupled with the resonator (in opening 4) and connected to the frequency control circuit (16).

As for claim 7, Sakamoto teaches the surface of the oscillation circuit substrate (6) is a first surface (bottom), and the ground electrode (14, 17) is disposed on a second surface (top) of the oscillation circuit substrate (6), the second surface opposing the first surface (one is top, one is bottom).

Regarding claim 8, Sakamoto teaches the land being connected to the ground electrode via a through-hole passing through the oscillation circuit substrate (6).

While Sakamoto teaches the land between the first electrode (2) and the bottom of the oscillation substrate being connected to the ground electrode formed between the dielectric substrate (1) and the oscillation circuit substrate (6), one of ordinary skill in the art would recognized that the ground electrode (14, 17) and the ground electrode formed between the dielectric substrate (1) and the oscillation circuit substrate (6) are functionally equivalent ground electrodes. Also, through-holes are well known devices for connecting circuit elements on opposite surfaces of a circuit substrate.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to connect the land to the ground electrode (14, 17) instead of the ground electrode formed between the dielectric substrate (1) and the oscillation circuit substrate (6) by way of a through hole because such a modification would have been a substitution of art recognized equivalent ground electrodes and a well known method of connecting circuit elements on opposite surfaces of a circuit substrate.

Claims 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto in view of Clark further in view of Iio (US Patent 6,414,639; reference of record).

In terms of claims 6 and 10, Sakamoto teaches the oscillator devices of claims 2 and 4 but does not teach the oscillator device being used in a transmission and reception device.

However, it is well-known to those of ordinary skill in the art to use oscillator devices in transceivers, Iio teaches an example of using an oscillator device (40) in a transmission/reception device (figure 8), i.e. transceiver.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to place the oscillator device of Sakamoto into a transmission and reception device because such a modification would have been making use of a well known application of oscillator devices.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEVI GANNON whose telephone number is (571)272-7971. The examiner can normally be reached on Monday-Friday 9:30AM-6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LG
09/22/08

/Robert Pascal/
Supervisory Patent Examiner, Art Unit 2817